

WHAT IS CLAIMED IS:

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A1

1. A method for operating a first base station (BS) in a cellular communication system comprising a plurality of BSs for transmitting information to a subscriber unit (SU), said information being included in a downlink signal sent from said first BS, said first BS comprising an array of antennae, each antenna being coupled to a signal processing circuit that generates an antenna signal for that antenna by processing said downlink signal, said processing depending on a weight set that is utilized in generating individual signals to be sent on individual antennae in said array of antennae, said weight set depending on the location of said SU relative to said array of antennae, said cellular communication including at least one protocol in which said SU generates a report signal indicative of the signal quality received by said SU when said first BS transmits a pilot downlink signal, said method comprising a method for determining said weight set corresponding to said SU, said determination method comprising the steps of:

transmitting a plurality of pilot downlink signals from said first BS to said SU, each pilot downlink signal being processed with a different weight set from the others of said pilot downlink signals;

receiving one of said report signals for at least two of said pilot downlink signals; and

assigning said weight set for said SU based on said report signals.

2. The method of Claim 1 wherein a first one of said pilot downlink signals includes a first identifier.

3. The method of Claim 2 wherein a second of said pilot downlink signals includes a second identifier that is different from said first identifier.

4. The method of Claim 3 wherein said first and second identifiers identify first and second BS, said second BS being displaced from said first BS by a distance sufficient to assure that the pilot downlink signal transmitted by the first BS and containing said second

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identifier will not interfere with communications between said second BS and said SUs currently communicating with said second BS.

5 5. The method of Claim 3 wherein said first pilot downlink signal identifies a first BS
and wherein said SU also receives a third pilot downlink signal from a second BS, said SU
generating and transmitting one of said report signals to said first BS, said report signal
indicating the signal strength of said third pilot downlink signal and wherein said first BS
determines whether to handoff said SU to said second BS based on the signal strengths
reported for said first, second, and third pilot signals.

10 6. The method of Claim 3 wherein said cellular communication conforms to a cellular
standard in which each SU automatically monitors each of a plurality of pilot downlink
signals in a set of pilot downlink signals defined in messages sent by said first BS to said SU,
said SU generating one of said report messages when said SU determines that one of said
15 pilot downlink signals in said set of pilot signals has a signal quality that exceeds a threshold
value, said report message identifying said pilot downlink signal.

20 7. The method of Claim 6 wherein said cellular standard is IS-95 and wherein said set
of pilot downlink signals comprises one of said Candidate Set, Neighbor Set, or Remaining
Set as defined in that standard.

Add A2

Add B5

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